

AIRCRAFT PHASED ARRAY ANTENNA STRUCTURE INCLUDING
ADJACENTLY SUPPORTED EQUIPMENT

ABSTRACT OF THE DISCLOSURE

An aircraft phased array antenna system has transmit and receive antenna structures externally mounted on the aircraft fuselage. Each antenna comprises a plurality of phased array elements and antenna power and support equipment. Aerodynamically shaping antenna structure to enclose an antenna element grid provides additional antenna structure volume, which is efficiently utilized by locating antenna support equipment within the antenna structure. To control signal attenuation a receive antenna internal converter converts receive frequency signals to L-band frequency signals for aircraft use, and a similar transmit antenna converter converts L-band frequency signals to transmit frequency signals, thus unconstraining antenna to internal aircraft equipment spacing. To reduce power loss and cabling weight, antenna operating power is first generated in the 28 to 270 volts DC range within the aircraft, and locally converted in each antenna to the 3 to 6 volt DC power to operate each antenna's phased array elements.